

# Work Order ID 58385

May 5, 2010 9:24:00 AM



Page 1

Item ID:	D2580-1	Accept		Setup	Start	
Revision ID:						
Item Name:	205 Skidtube bent detail				Stop	
Start Date:	05/05/2010	Start Qty:	2.00			
Required Date:	13/05/2010	Req'd Qty:	2.00			
Reference:						
				Cust Item ID:		
				Customer:		

Approvals:	Process Plan:	<u>RL</u>	Date:	<u>10-5-05</u>	Tooling:		Date:		Run	Start	
	QC:		Date:		SPC (Y/N):		Date:			Stop	

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
<b>Draw Nbr</b>	<b>Revision Nbr</b>								
D2580	Rev D								
100		0.00							
	HandFinish								
	Hand Finishing								
	Memo	0.00							
	1- Inspect mat'l D2500-1-190 for damage.								
	2- Chemical Conversion Coat as per QSI 005 4.1								
101	QC3- Inspect Part Finish	0.00							
	QC								
	Quality Control								
	Memo	0.00							

2 - AWM 10-5-06

2 - 4/10/5/6

W/O:			WORK ORDER CHANGES					
DATE	STEP		PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Work Order ID 58385

May 5, 2010 9:24:00 AM



Page 2

Item ID: D2580-1

Accept



Setup Start



Revision ID:

Item Name: 205 Skidtube bent detail

Stop



Start Date: 05/05/2010 Start Qty: 2.00

Required Date: 13/05/2010 Req'd Qty: 2.00



Cust Item ID:

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Draw  
Number

Draw  
Rev.

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

110



Skidtubes

Skidtubes

Memo

0.00

1-Drill pilot holes using drill jig DT 8149 (Do not use cutting fluid)

2-Open holes to 0.500" as per Dwg D2580 without cutting fluid

3-Deburr and blow out all chips from inside of tube

4-Bond web in place per QSI 015.

□□ A/R Sikaflex-291 batch: 113435 □□□

Sikaflex expire date: 10-11-20

Start time: bond for 12hrs 10:00

AWM 10-5-06

2 - - AWM 10-5-07

130



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

Memo

0.00

DP 10-5-11 (2)

W/O:			WORK ORDER CHANGES					
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**NOTE:** Date & initial all entries

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May 5, 2010 9:24:00 AM



Page 3

Item ID: D2580-1

Accept



Setup Start



Revision ID:

Item Name: 205 Skidtube bent detail

Stop



Start Date: 05/05/2010 Start Qty: 2.00



Required Date: 13/05/2010 Req'd Qty: 2.00



Cust Item ID:

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Draw  
Number

Draw  
Rev.

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

140

Identify as per dwg & Stock Location: **46**

0.00



Packaging

Memo

0.00

Packaging

**DP**

**10-5-11**

**(2)**

150

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

**10/05/12**

**MF**

**10-5-11**

W/O:			WORK ORDER CHANGES					
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NOTE: Date & initial all entries

# Picklist Print

May 5, 2010 9:24:05 AM

Page 1

Work Order ID: 58385



Parent Item: D2580-1



Parent Item Name: 205 Skidtube bent detail

Comments: IPP B ☐ 01.11.08 ☐ Revised Step 9, 10, 12, and 13 ☐ SM ☐

Start Date: 05/05/2010

Required Date: 13/05/2010

Start Qty: 2.00

Required Qty: 2.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Qty Issued	Date Issued	Status
D2500-1-190  Ext'n -I' Beam Tube 4"		Manufactured	No				Each	50.0000	1			

B-52319 ANM 10-5-6 (2)

			<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
			LG	50	
			52319	50	
D2596  Web, 205 Skidtube		Manufactured	No	110	Each
					0.0000

B-58420 ANM 10-5-07 (2)

W/O:			WORK ORDER CHANGES					
DATE	STEP		PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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DATE	STEP		Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
				Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



**DART**

DESIGN <i>[Signature]</i>	DRAWN BY <i>[Signature]</i>	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D2580	REV. D SHEET 1 OF 3
DATE 07.02.27		TITLE 205 SKIDTUBE ASSEMBLY SCALE NTS	
A	96.09.16	NEW ISSUE	
B	96.12.02	AS MANUFACTURED	
C	98.08.26	REDRAWN, INCLUDED DEO 9094/9097	
D	07.02.27	CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124/9183	

**RELEASED**  
07-06-28 *[Signature]*

QTY -041	QTY -045	Part Number	Description
X		D2580-041	SKIDTUBE ASSEMBLY
	X	D2580-045	SKIDTUBE ASSEMBLY
1	1	D2500-1-190	EXTRUSION
1	1	D2576-3	STEP
20	24	D2579	CROSS BOLT SPACER
16	16	D2594-1	PLUG
16	16	D2594-3	O-RING
1	1	D2596	205 WEB
1	1	D2855	AFT CAP
1	1	D3564-5	WEARSHOE
1	1	D3564-9	WEARSHOE
1	1	D3564-11	WEARSHOE
1	1	D3564-13	WEARSHOE
2	2	D3566-1	GASKET
1	1	D3566-5	GASKET
1	1	D3566-13	GASKET
50	50	ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or AELS-1032-130	INSERT
50	50	AN3C4A	BOLT
2	2	AN3-5A	BOLT
50	50	AN960C10L	WASHER
2	2	AN960JD10L	WASHER

SHOP COPY  
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SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 58385

*07-10-5-05***GENERAL NOTES:**

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 2) ALL DIMENSIONS ARE IN INCHES
- 3) INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- 4) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 5) USE DART DRILL TEMPLATE TD2577-205 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTION D-D (50 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND AN960C10L WASHERS WITH SIKAFLEX-241/-291.
- 6) WELDING TO BE DONE PER DART QSI 004.
- 7) FINISH:  
SEE NOTES ON  
PAGE 2 FOR D2580-041 AND  
PAGE 3 FOR D2580-045
- 8) INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES).

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W/O:			WORK ORDER CHANGES					
DATE	STEP		PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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**NOTE:** Date & initial all entries

RELEASED  
07-06-28-11

Diagram illustrating the underside of the D2576-3 propeller, showing the location of the GRIND FLUSH (4 PLACES) and the LOCATION RIDGE ON UNDERSIDE OF D2576.

Ø0.208

DRILL PRIOR TO D2855 CAP  
INSTALLATION (2 PLACES)

SEAL WITH  
SIKAFLEX-241/-291

AN3-5A BOLT (1)

AN960J10L WASHER (1)  
(2 PLACES)

D2855 CAP

0.40

Diagram of a circular component with labels and assembly instructions:

- D2579 SPACER**: Points to the top horizontal bar.
- D2596 WEB (REF)**: Points to the vertical central bar.
- ALS7-1032-130 (REF) (TYP 50 PLACES)**: Points to the bottom horizontal bar.
- 5**: A circled number 5 in a triangle, indicating a quantity of 50 places.
- AFTER DRILLING AND BENDING ASSEMBLY PERFORM THE FOLLOWING FOR #0.508 HOLES ONLY:**
  1. CHAMFER HOLE 0.050 X 45°
  2. INSERT D2579 SPACER (20 PLACES)
  3. WELD INTO PLACE AND GRIND FLUSH
  4. C'BORE D2579 SPACER TO  $\phi 0.437 \times 1.00$  DEEP

i) FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB POWDER COAT ASSEMBLY GLOSS WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3 BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4

37.50

DISTANCE TO AFT END OF D2596 WEB

3 7

1.750

1.750

Ø0.508 (TYP.) (40 PLACES)

REFER TO DETAIL A

8.750

17.375

26.000

34.188

57.313 (REF)  
7 EQUAL SPACES  
8.188 PITCH

38.0

91.500

190.0  
(D2500-1)

REFER TO DETAIL A

Diagram illustrating the cross-section of a road with a 4% grade and a 20.0m radius curve. The diagram shows a 1.4m shoulder, a 1.0m distance between the hole and the tangent point, and a 32.0 ± 1.0m distance between the hole and the tangent point. A 1.0m distance is also indicated between the hole and the tangent point.

WELD AS PER DETAIL B

BLACK ANTI-SKID TO 0.5 ABOVE LOCATION RIDGE

BLACK ANTI-SKID TOP OF STEP TO 0.5 ABOVE BOTTOM EDGE

0.5

1.5

1.5

D

8

1.5

1.5

1.5

P P P P P P P

REFER TO DETAIL C

D3566-1

D3566-5

D3566-1

D3566-13

D3564-11

D3564-5

D3564-9


D3564-13

AN3C4A BOLT (1)

AN960C10L WASHER (1)

(50 PLACES)

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 <b>DART AEROSPACE LTD.</b> HAWKESBURY, ONTARIO, CANADA	
DRAWING NO.	REV. D
D2580	SHEET 2 OF 3
TITLE	SCALE
205 SKIDTUBE ASSEMBLY	1:24

W/O:			WORK ORDER CHANGES					
DATE	STEP		PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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RELEASED  
07 Dec 78

Diagram illustrating the underside of the D2576-3 step, showing the locations for grinding flush and the location ridge on the underside of the D2576.

Labels in the diagram include:

- GRIND FLUSH (4 PLACES)
- GRIND FLUSH
- D2576-3 STEP
- LOCATION RIDGE ON UNDERSIDE OF D2576

Technical drawing of a circular component with the following annotations and dimensions:

- #0.208**: Dimension for the outer diameter.
- DRILL PRIOR TO D2855 CAP INSTALLATION (2 PLACES)**: Instruction for drilling two locations.
- SEAL WITH SIKAFLEX-241/-291**: Instruction for sealing the component.
- AN3-5A BOLT (1)**: Specification for one bolt.
- AN960J10L WASHER (1)**: Specification for one washer.
- (2 PLACES)**: Indication for two locations.
- D2855 CAP**: Specification for the cap.
- SEE NOTE ii)**: Reference to a note.
- 0.40**: Dimension for the thickness of the component.

D2579 SPACER

D2596 WEB (REF)

ALSY-1032-130 (REF)  
(TYP 50 PLACES)

5

AFTER DRILLING AND BENDING ASSEMBLY PERFORM THE FOLLOWING FOR #0.508 HOLES ONLY:

1. CHAMFER HOLE 0.050 X 45°
2. INSERT D2579 SPACER (20 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. C-BORE D2579 SPACER TO  $\phi 0.437 \times 1.00$  DEEP

i) FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB POWDER COAT ENTIRE ASSEMBLY GREEN (REF. 4.3.5.8) PER DART QSI 005 4.3 BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4

ii) IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2855 AFT CAP TO PREVENT INTERFERENCE WITH THE SPACER AT THIS LOCATION

37.50  
DISTANCE TO AFT END  
OF D2596 WEB  
3 7

1.750 1.750

Ø0.508 (TYP.)  
(40 PLACES)

REFER TO DETAIL E

REFER TO DETAIL A

8.750  
17.375  
26.000  
34.188


57.313 (REF)  
7 EQUAL SPACES  
B.188 PITCH

38.0 91.500

190.0  
(D2500-1)

[illegible]

W/O 5885

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	CHECKED	APPROVED		DRAWING NO.
	DATE	TITLE	SCALE	
	07.02.27	205 SKIDTUBE ASSEMBLY	1:2	

W/O:			WORK ORDER CHANGES					
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